No. 20

Lecture Notes.

No. 1.

Topography.

Bill — Upper mandible (= maxilla)
Lower mandible
Culmen, nostril, Nasal fossa, Gape
Rictus, (rictal bristles), Angle of the mouth
Ramus of lower mandible, Tomia, Gonys.

Foot — Hind toe (= hallux); hind-toe-&-claw.
Inner toe, middle toe and outer toe, Tarsus.
Tibia — heel joint (suffrago.)
Femur.

Head — Forehead, crown, occiput, cervix, lores, auriculars,
malar region, chin, throat, jugulum, side of neck,
Back, scapulars, rump, upper Tail-coverts,
Rectrices (tail-feathers — middle & lateral) crissum,
Lower Tail coverts, Anal region, flanks, sides
breast, abdomen, tibia.

No. 2.

Feathers.

Function – Flight; contour.   Use of everything

Feather = Calamus (barrel), Shaft (rachis), After-shaft (hyporachis), Barbs (rami), Barbules (radii); Barbicels (cilia) Hooklets (hamuli.)

Hook together on side of pressure. A light, strong but elastic surface. Rows of lamellae. (hollow)
(1) Contour feathers; (2) downs; (3) half-downs; (4) hairlike feathers (= filoplumae). USE. Physical structure causes some color.

Feathers of different tracts. { lores. Auriculars. Ear.

Wing & tail feathers; emarginate feathers; Shaft at front edge of feather.

Feather tracts – pterylae – pterylosis.
1 Spinal; 2 humeral; 3 femoral; 4 capital; 5 alar; 6 caudal; 7 crural; 8 ventral.

(Identification by use of a key. alternatives.)

filoplumes degenerate

No. 3.

Field-work. Take into the field:
Pins, stiffpaper, cotton, notebook, knife.

Use of gun; safety, carriage,
Range. no. shells to take 25.
Loading shells. Size of shot to use.

Care of specimens obtained. Cornucopia.
Sand. Pen. knife _ blood. Cotton in mouth.

Notes. Do not depend on memory.
Species. Alone or in flocks. Song. Notes.
Flight. Where found. Vegetation. Nesting
habits, carefully describe.

Stomachs - food.

No. 4.

Moult.

Feather tracts – pterylae – pterolysis.

1 Spinal; 2 humeral, 3 femoral, 4 capital, 5 alar; 6 caudal; 7 crural, 8 ventral.

Moults — primitively simultaneous, as a lizard. ~~Ducks.~~ Irregular, but progressing symmetrically in higher birds. So as not to incapacitate for flight. Ex. Ducks = cowards.

Loss of a feather excites growth of another at once. Feather, dead. So that feathers may be appearing at any time. Seasons of moult. Succession of Plumages;

Natal – postnatal
Juvenal – postjuvenal
1st winter – 1st prenuptial
1st Nuptial – 1st postnuptial

2nd. Ad. winter – 2nd prenuptial
2nd. ad nupt. – 2nd postnuptial.
(Partial moults.)

Identification by use of a Key. Alternatives.

No. 5.

Classification.

Nomenclature = system of naming.

Classification, based on natural affinities.

These determined by Embryology & Anatomy,

rather than external characters. e.g. Swallow + Swift.

Homologies, analogy. (real relationship; points of apparent likeness)
Swallow & Swift.

Value of characters. A matter of opinion.

Character = any observable + useful point of structure.

Taxonomy. Genus, species, subspecies.

Priority of names. No two specific names can be alike in same genus.

"Species" do not exist.

Groups — Arbitrary.

Class - Order - Family - Genus - species - subspecies.

Synonyms?

No. 6.

Coloration.

Pigmentary, caused by absorption of light.
Structural, caused by interruption + reflexion " .
e.g. Hummer – Quail.

all color in animals must have been non-significant, occurring incidentally. Such color might, however, have been siezed upon by natural selection and adapted in intensity + arrangement to the advantage of the animal.

Significant
Non-significant
Protective Resemblance. to another species.
Aggressive Resemblance.

Protective Mimmicry
Aggressive Mimmicry* Special resamblance.

3. Warning Coloration (Jays + crows.) Skunk.

4. Ornamental or Sexual Coloration. Phalaropes.

Alluring colorations (Crest of Flycatchers)

Recognition-markings (=Warning)*. Junco's Tail.

Combinations of all 4. (Kinglet)

Protective Coloration. Desert, Woods, Brush.

Thayer's Law.

Pattern's of Coloration.

Fading.
Abrasion
Wear varies according to position.
Season – breeding.
Change of general color.

Color change aptosochromatism

Plumages. Juvenal to Ad. ♂.

Young Quail. Woodpeckers

* Inside of mouths of young birds, yellow, bright = directive!

No. 7.

Shearwaters.

Tubinares.	Procellaridae	Puffinus.
Nares-horizontal & parallel with nostrils at tip. Hallux small, functionless. Do not dive. Webbed toes.	Nasal tubes united resting on basal portion of culmen. Plumage - compact & oily = oil-sac, large. Musky oil.	Secondaries 13 or more. 10 primaries. Unguis.

Wings, long & pointed.

Moult. Distribution & migration.

Southern Hemisphere, migration from {Chili, Tasmania

Sexual organs undevelloped. Dissect.

Food; Dissect.

Habits; food. dissect,

Automatic arrangement shown in swimming.

No. 8.

Abrasion – etc.

Feather change without moult. Aptosochromatism
Feather disintegration. Abrasion & Fading.
Wear against each other, & against grass or foliage.
Song Sparrows from different localities at same time
Blackbirds & Bobolinks.

References.
- Chadbourne Auk XIV, April 1897, 137.
- Chapman Auk XIV, April 1897, 149.
- Chapman Auk VII, April 1890, 120.
- Chapman Auk X, Oct. 1893, 309.

Nesting of Shearwaters.

Anthony,
Auk XVII, July 1900, 247.

Petrels in Alaska!

No. 9.

Migration. See Brewster

[illegible] [illegible] [illegible]

[illegible] [illegible] [illegible]

[illegible] [illegible] [illegible]

[illegible] [illegible] [illegible]

[illegible] [illegible] propulsion [illegible]

[illegible] [illegible] [illegible]

[illegible] [illegible] [illegible]

[illegible] [illegible] [illegible]

[illegible] [illegible]

Physical or outward { Winter [illegible]
Failure of food.

Psychological or inward { [illegible] { [illegible]
[illegible] [illegible]
[illegible]

[illegible]

[illegible]

Size, Proportions; family Alcidae. [illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible] of bill [illegible]

[illegible]

[illegible]

Habits & eggs of Murres. [illegible]

Coloration of birds, & of eggs.

Dark to water line.

No. 11.

Geographical Distribution

of Birds.

[illegible]

Arctic No trees, dwarf willows, ptarm

Hudsonian — Spruces & Firs. Evening Grosbeak,
Pine Grosbeak & Crossbills [illegible]

[illegible]

No. 12.

[illegible]

[illegible]

13.

— Dr. Lay.

[illegible]

No. 20

[illegible]

Structure [illegible]

[illegible]

sensitive Bills for probing Feeding habits

[illegible]

Weak feet. Wing markings. Squat.

11.23

[illegible] = well-fed

[illegible] T = [illegible]

[illegible]

{ [illegible]
{ [illegible] [illegible]

[illegible]
Trypan [illegible]

[illegible] by tail = trypanos

[illegible]

No.7 Ruled

J. Grinnell

Bibliography and Index
to California Ornithology.

No. 4.